

ART. XIV.—*Contributions to the Flora of Australia, No. 28.*

BY

ALFRED J. EWART, D.Sc., Ph.D., F.L.S.

(Government Botanist of Victoria and Professor of Botany and Plant
Physiology in the Melbourne University).

AND

J. R. TOVEY,

(Assistant, National Harbarium, Melbourne).

(With Plate XII.)

[Read October 9th, 1919.]

ACACIA DAWSONI, R. T. Baker. (Leguminosae).

Mitta Mitta, Mr. Clinton, Nov., 1918.

New for Victoria.

ACACIA LEPROSA, Sieb. "Leper Acacia." (Leguminosae).

Between Eaglehawk and Sydney Flat, Victoria, David J. Paton,
August 23rd, 1919. An unrecorded locality in Victoria for this
plant.

ADRIANA, Gaud. (Euphorbiaceae).

Pax in Engler's Pflanzenreich, IV., 147-II., pp. 17 to 21
(1910) practically agrees with Bentham's arrangement of the genus
Adriana. Maiden, in his Census of New South Wales Plants, fol-
lows them.

Distribution of Adriana.

A. GLABRATA, Gaud. V., N.S.W., Q., N.A.

A. GLABRATA, var. acerifolia, Pax. (A. acerifolia, Hook).
V., N.S.W., Q.

A. GLABRATA, var. Cunninghamii, Müll. Arg. V.

A. GLABRATA, heterophylla, Müll. Arg. V.

A. TOMENTOSA, Gaud. W.A., N.A.

A. HOOKERI, Müll. Arg. (incl. 2 varieties). V.

A. QUADRIPARTITA, (Lab.) Gaud. W.A., T., V.

A. KLOTZSCHII, (F. v. M.) Müll. Arg. S.A., V.

In Mueller's Second Census, the foregoing species are reduced to two, but as they are all readily distinguished from one another they must be kept separate.

AGROSTIS LACHNANTHA, Nees. (Gramineae).

Dookie, Victoria, W. D. Wilson, February, 1911. Canterbury and Mitcham, Victoria, R. Ardagh, December, 1918.

This useful pasture grass, a native of South Africa, is now apparently establishing itself as a naturalised alien in Victoria.

AIZOON ZYGOPHYLLOIDES, F. v. M. (Aizoaceae).

This species was recorded in the Victorian Naturalist, Vol. XVII., p. 203 (1901), as being new for Victoria. This was evidently an error, as the specimens from Corio Bay, Geelong, Jan., 1901, on which the record was founded, proved on examination to be *Mesembryanthemum angulatum*, Thunb., a native of South Africa, which has been recorded as an introduction at Coode Island, in Victoria. (Collected by J. R. Tovey, 1908.) *Aizoon zygophylloides* is only found in West and South Australia, New South Wales and Queensland.

ALHAGI CAMELORUM, Fisch. "Camel Thorn" (Leguminosae).

Tongala Irrigation District, Victoria. E. Kendall, 13/1/1920.

This plant, a native of Central Asia and the Orient, was previously recorded as growing wild in Victoria from the North-eastern district. It is now evidently spreading westward.

AMARANTHUS DEFLEXUS, L. (Amarantaceae).

Elwood, Victoria, E. J. Semmens, November, 1917.

Another locality in Victoria for this weed. It is a native of Europe, and is now apparently in the process of naturalisation in this State.

ARUNDO PHRAGMITES, L. (*Phragmites communis*, Trin.)

"Common Reed." (Gramineae).

Daly River, Northern Territory, May, 1919.

Probably fairly common in the Northern Territory, but only previously recorded from Port Darwin, M. Holtze, 1889. It may possibly in some cases be included under the name *Arundo Roxburghii*, F. v. M. The plant is used for thatching hay ricks and sheds in Victoria. It has a certain fodder value when young, and may have other economic uses.

BASSIA QUINQUECUSPIS, F. v. M. var. *villosa*, Benth. (*Anisacantha muricata*, Moq.) var. *villosa*, Benth. "Spear-fruited Saltbush".
(*Chenopodiaceae*).

Sedgwick, near Bendigo, E. J. Semmens. 24/10/1919; Numurkah Shire, per Department of Agriculture, Nov., 1919.

This plant is now evidently spreading eastward in Victoria, having been previously recorded from the North-West District only.

BRACHYCOME MICROCARPA, F. v. M. (*Compositae*).

Ti-tree Creek to Orbost. Mr. Sayer, 1887, Cann River. H. B. Williamson, Jan., 1918.
New for Victoria.

BROMUS CEBADILLA, Steud. "Chilian Brome Grass" (*Gramineae*).

East Caulfield, Geo. Seymour, 17/12/1919.

This grass, a native of Chili, may be classed as an exotic not yet sufficiently established to be considered naturalised.

BUCHANANIA OBLONGIFOLIA, W.V. Fitzg. Royal Society of W.A., III., p. 65, 1918. (*Anacardiaceae*).

A specimen from Robinson River, King's Sound, 1888, G. Poulton, was identified by Mr. Fitzgerald as *B.oblongifolia* before this species was published. It agrees with the specimens quoted in the *Flora of the Northern Territory*, pp. 171-172, as *Buchanania Muelli* var. *pilosa*. The specimens hardly appear to be sufficiently distinct from the forms of *Buchanania Muelleri* to justify raising a new species, *B. oblongifolia*, W. v. F.

CALEANA MINOR, R. Br. "Small Duck Orchid" (*Orchidaceae*).

Sperm-whale Head, South-east of Lake Victoria, Gippsland, T. S. Hart, 12/12/1919.

This orchid has not been previously recorded so far east in Victoria.

CALOCHILUS CUPREUS, R. S. Rogers. "Copper Beard." (*Orchidaceae*)

A new orchid from South Australia, described by Dr. Rogers in the *Proceedings of the Roy. Soc. of South Australia*, collected for the first time in Victoria near Boronia Peak, Grampians, by J. W. Audas, 2/11/1918.

CALOSTEMMA PURPUREUM, R.Br. "Garland Lily."
(Hydrocharitaceae).

Lake Hattah, J. E. Dixon, April, 1919.

A definite locality in Victoria for this plant.

CASSYTHA. (Lauraceae).

In regard to the germination of seed of *Cassytha*, Mr. C. C. Brittlebank writes as follows:—

"About eleven or twelve years ago, at Myrning, I obtained numbers of young seedling plants in all stages of growth from seeds just sprouting, rooted seedlings, and even plants, which had become fixed to young gum twigs. In several seedlings, which had reached this stage, the lower part had withered, but in some cases the plant had broken at the base. As to the conditions prevailing prior to and during the observations. A bush fire had passed through the stunted gum scrub, which was heavily loaded with *Cassytha*. Both host and parasite had been destroyed by the fire. Heavy rain fell shortly after, and continued to do so at intervals. The burnt gums sent out sprouts from their bases, and it was upon these young suckers that the more mature seedlings had become attached. This was the only time that I ever saw the seedlings of this plant, and it was due to this that I so carefully observed them." Evidently the germination of *Cassytha* is rare, owing to its hard seeds, and in this case the heat of the bush fire softened the seed coats and hence caused the absorption of water and germination of the seeds. The duration of the seeds in the soil is not known, but some buried in the soil of a pot for three years were found to be capable of germinating after being filed.

Mr. T. S. Hart has also forwarded me seedlings of *C. melantha*, found growing wild near Bairnsdale, in October, and apparently germinating naturally. It is possible that the difficulty of finding seedlings may be due to the fact that germination only takes place naturally during one month in the year, and that the rooted attachment is soon lost.

CASUARINA HELMSII. Ewart and Gordon, n.sp. (Casuarinaceae).

Gnarlbine, W. Australia, R. Helms, 12/11/91. Eucla, W. Australia, J. D. Batt, 1886. (See Plate XII.).

This plant was named *C. humilis* by Helms, but has terete instead of angular branches. The following is the description:—

A small tree from 5-8 feet in height. Branchlets are from 4-4½ in., and branches slender. The sheath-teeth vary from six to seven in number.

Fruit cones are cylindrical, and very regular, about ½-in. in diameter, and 1-in. long. The valves do not protrude beyond the surface, which is nearly smooth, and quite glabrous.

The seeds are small and red. They are much more pointed than those of *C. humilis*, and smaller.

Deviations from C. humilis.

(1) Branches.—These are much more slender, and the branchlets are about twice as long, though with shorter internodes and smaller diameter; they are also less angular than *C. humilis*. The colour of the branchlets is more greenish than grey.

(2) Fruits.—The cones are shorter and less rugose, the valves and markings are more regularly arranged, and the valves do not open as widely. The seeds are small, red and pointed, while those of *C. humilis* are larger, black and blunt.

COLLOMIA COCCINEA, Lehm. ex Benth. "Scarlet-flowered Collomia."
(Polemoniaceae).

Mandurang, Hintiraekku (without date), Bendigo, E. J. Semmens, Nov., 1919.

This plant, a native of Chili, is an exotic, found growing wild, but not yet sufficiently established to be considered naturalised.

CREPIS SETOSA, Hall, f. "Hairy Crepis." (Compositae).

Ballarat, Victoria, E. J. Semmens, March, 1913.

This plant, a native of Europe and Asia Minor, may be classed as an exotic, not yet sufficiently established to be considered naturalised. It is a weed of cultivated and waste places, and takes up the place of useful vegetation, and should be suppressed.

CROWEA SALIGNA, Andr. (Rutaceae).

Pine Mountain, Upper Murray River, Vic., C. Walker, Oct., 1891.

CYTISUS LINIFOLIUS, Lam. "Flax Broom." (Leguminosae).

Roadsides, at Ararat, E. J. Semmens, October, 1918. Another locality in Victoria for this introduced plant.

ECHIUM VIOLACEUM, L., or *Echium plantagineum*, L.

"Paterson's Curse." (Boraginaceae).

After the last visit of the British Association some doubt was raised as to the correct name for the above plant, and it was even suggested that it might be *Echium italicum*. The latter suggestion was, however, merely due to the plant having been seen in fruit only. To decide the former question specimens were submitted to Dr. Lacaita, who has been specialising on the genus *Echium*. In his reply given beneath, the decision is made that the name given to the plant by Bentham in 1869, and under which the plant was proclaimed, is not correct, and that the name should be *Echium plantagineum*. As the point is one of some importance, Dr. Lacaita's reasons are given in full:—

"As to *Echium plantagineum* and *Echium violaceum*, the plant often called *violaceum*, especially by English botanists, is, as you rightly say, identical with *E. plantagineum*, but it is not *E. violaceum*, L. The *violaceum* of Sp. Pl. is a muddle of two species, quite unlike each other, neither of which is *E. plantagineum*. The synonyms all refer to *E. rubrum*, Jacq., a very distinct species. It is the only *Echium* with a clubbed instead of a trifid stigma. The definition of the genus both in Bentham and Hooker, and in Engler, requires modification in that respect. But the observation describes a plant cultivated in Hort. Uppslana, which is represented by the specimen in the Linnean Herbarium. This plant is neither *rubrum*, nor, as pointed out by Moris in his *Flora Sardoia* long ago, is it *E. plantagineum* (*E. violaceum* auctt. plur.). Moris says it is very like the Sardinian (and Italian) plant known as *E. pustulatum* S. and S. It is very like it, but as far as I can form an opinion without dissection of the corolla, which is inadmissible in Linnean type specimens, it is more probably the Portuguese and Spanish *E. rosulatum*, Lange, which, to this day, is grown at Kew, and taken under the misnomer of "*E. plantagineum*," or "*E. creticum*."

It is curious that Linneus should never have recognised *E. rubrum*, for there are three fine examples of it in his herbarium, two sheets being loose, but the third is pinned to the sheet of *E. italicum*. None of these three sheets bears any writing of Linneus, who left them undetermined.

E. plantagineum is always easily recognised by—

1. Plantain-like basal leaves.
2. Amplexicaul upper leaves.
3. Peculiar thin texture of corolla in dried plant.

4. Corolla glabrous, with long hairs on the nerves and ciliate, not velvety pubescent all over, as in all species for which it could be mistaken.
5. Leaf indumentum homogeneous; the tubercle at base of hairs conspicuous or inconspicuous, but no carpet of close short pubescence beneath them.

It appears, therefore, that the name *E. violaceum*, under which Paterson's Curse was originally proclaimed, must now revert to *E. plantagineum* L.

EUCALYPTUS MITCHELLIANA. Cambage. Willow Gum.
(Myrtaceae).

Near Chalet, Buffalo Mountains. An addition to the Flora of Victoria. The plant was originally named *E. Mitchelli*, but this name is already pre-empted for a fossil *Eucalyptus* (Journ. Royal Soc. of N.S. Wales, Vol. LII., p. 57, 1919.)

EUCALYPTUS WOOLLSIANA, R. T. Baker. (Myrtaceae).

About seventeen miles east of Nowingi Railway Station, North-West Victoria. (L. G. Chandler, 24/9/1919.)

This *Eucalypt* has not been previously recorded as growing indigenously in Victoria.

FICUS MACROPHYLLA, Desf. "Moreton Bay Fig." (Moraceae).

From the base of a large tree in the University grounds, in November, 1914, the bark was removed, and two inches of the outer wood. The tree attempted to send down roots from the cut surface at one point. These were cut off. During the first two seasons the foliage of the tree was quite normal. Later the leaves began to fall more rapidly than new ones were produced, and branch after branch died. During the first season the amount of latex increased markedly, after the second season it steadily decreased. The tree was not entirely dead until the declaration of Peace in May, 1919. It, therefore, lasted four and a-half years after being rung. During this time the wood remained moist and sappy to the heart of the tree, and it continued to grow on the upper part of the tree, above the ringing, but ceased to grow on the basal portion of the trunk. At the end of the four and a-half years the roots were found to be entirely dead, whereas above the ringing, the bark at one or two points still shewed signs of life. On examining the wood it was found that although the apparent rings

are regular and well defined, they are not annual rings. The tree could not have been planted more than fifty-five years ago, probably not more than fifty years ago. On some of the projecting buttresses the rings totalled from 220 to 263. The smallest number between the buttresses was 121. The tree can, therefore, form two to four rings in one year. These narrow rings are formed of alternate layers of wood fibres mixed with vessels, and of thin walled, rounded, almost parenchymatous cells resembling somewhat tangential medullary rays. If the cross section is examined from a distance sufficient to obscure the narrow rings, the broader annual rings can be distinguished. The number of these was 46, and in the buttresses they were broader and included more of the narrower rings.

The death of the tree was due not to any interruption of the water supply, but to the starvation and death of the roots. The wood of the Moreton Bay fig apparently retains the power of conducting water indefinitely, or at least, up to an age of 40 or more years.

GLEICHENIA HERMANNI, R.Br. = *G. LINEARIS*, Clarke. (Filicales).

As there are no Victorian specimens of this plant, it cannot be retained in the Flora of Victoria.

GLEICHENIA LAEVIGATA (Willd), Hook. (Filicales).

There appears to have been some confusion regarding the nomenclature of this fern. In "Hooker's Synopsis Filicum," *G. laevigata* is given as a synonym to *G. flagellaris*, Sprengl., but in Christensen's "Index Filicum," they are kept distinct. See also "Domin. Prod. Farnfl. Qld. 205, Rosenburgh, in his Handbook of Malayan Ferns, adopts *G. laevigata*, Hook, for the Malayan specimens. The typical *G. flagellaris*, Spreng. is a native of Mauritius only, whilst *G. laevigata* is a Malayan fern extending to Australia. Some specimens of *G. laevigata* have also been confused with *G. flabellata*, R. Br. — those labelled *G. flabellata* and given in Bentham's *Flora Australiensis*, Vol. VII., p. 698 (1878) under Victorian localities, proved to be *G. laevigata*, Hooker.

The distribution of *G. laevigata*, Hook, and *G. flabellata*, R. Br., in Australia, appears to be limited to the Eastern and Northern portion—i.e., Tasmania, Victoria, New South Wales, Queensland, and Northern Australia.

GNAPHALIUM INDICUM, L. "Indian Cudweed." (Compositae).

Near Station Peak, Victoria, without collector's name or date.

This species has not been recorded previously for Victoria.

GOODENIA ARTHROTRICHA, F. v. M., ex Benth. Fl. Austr. IV. 62 (1869)
= G. Bonneyana, F. v. M., Fragm. VI. 226 (1868), t. LIII.
(Goodeniaceae).

The above is given by Krause in Engler's Pflanzenreich IV., 277, p. 63 (1912).

The description of *G. Bonneyana* was published a year earlier than that of *G. arthrotricha*, hence *G. Bonneyana* has priority, and is therefore a valid species, with *G. arthrotricha* as a synonym.

Distribution.—Western Australia.

GOODENIA GENICULATA, R.Br. (Goodeniaceae).

K. Krause, in his Monograph of the Goodeniaceae, in Engler's Pflanzenreich IV., 277, pp. 52, 3, 4 (1912), divides the above species into five different species, i.e., *G. geniculata*, R. Br., *G. primulacea*, Schlechtd., *G. robusta*, Krause, *G. affinis*, De Vriese, *G. lanata*, R. Br. Of these some of the forms of *G. primulacea* cannot be readily distinguished from some of those of *G. geniculata*, hence *G. primulacea* can only be considered to be a variety of *G. geniculata*, i.e., *G. geniculata*, R. Br. var. *primulacea*, Benth, as given in Benth, Fl. Aust. IV., p. 63 (1869).

Krause gives the distribution of *G. primulacea* from South Australian localities only, but we have specimens from Victorian and New South Wales localities, which agree exactly with the above, and must be placed under the variety *primulacea*.

The distribution of the foregoing species are:—*G. geniculata*, R. Br., South Australia, Tasmania, Victoria, New South Wales, and Queensland.

G. geniculata, var. *primulacea*, Benth, South Australia, Victoria, New South Wales.

G. geniculata, var. *heterophylla*, F. M. Reader, Victoria.

G. robusta, Krause, South Australia, Victoria.

G. affinis, De Vriese, Western Australia.

G. lanata, R. Br., Tasmania, Victoria, New South Wales.

GOODENIA GRANDIFLORA, Sims. (Goodeniaceae).

In Engler's Pflanzenreich IV., 277, p. 75 (1912), Krause reduces *G. albiflora*, Schl., *G. Chambersii*, F.v.M., *G. Macmillanii*, F.v.M.,

and *G. Nicholsonii*, F.v.M., to varieties of *G. grandiflora*, Sims.

G. albiflora and *G. Chambersii* seem to be fairly distinct, and may for the present be classed as valid species.

G. Macmillanii and *G. Nicholsonii* may be placed as varieties of *G. grandiflora*, thus adding this species to the list of Victorian Flora.

Distribution.

G. grandiflora, Sims, Western Australia, South Australia, New South Wales, Queensland, Northern Australia.

G. grandiflora, var. *Macmillanii*, Krause, Victoria.

G. grandiflora, var. *Nicholsonii*, Krause, South Australia.

GREVILLEA RAMOSISSIMA, Meisn. "Branched Grevillea." (Proteaceae)

Buchan, East Gippsland, Miss Margaret McRae, 15/12/1919.

This plant has only been previously recorded from the North-Eastern districts.

GREVILLEA ROSMARINIFOLIA, Cunn. "Rosemary Grevillea."
(Proteaceae).

Whipstick Scrub, Neilborough Road, north of Eaglehawk, Victoria, David J. Paton, 7/9/1919.

This species has usually reddish flowers, but the flowers of the above specimen were of a greenish yellow colour, but turned a dark colour when drying.

HAKEA FLEXILIS, F. v. M. "Flexile Hakea" (Proteaceae).

This is a valid species, and is a native of Victoria, New South Wales and South Australia.

HAKEA SERICEA, Schrad. (1795). (*H. ACICULARIS*, R.Br., 1809).

Hence *H. sericea* has priority over *H. acicularis*.

HELIPTERUM MICROGLOSSUM, Maiden and Betche. (Compositae).

As there are no Victorian specimens of this species, the name must be deleted from the Flora of Victoria.

HYBANTHUS FILIFORMIS, F. v. M. "Slender Violet." (Violaceae).

Mitta Mitta, S. F. Clinton, October, 1919.

Not previously recorded for the North-Eastern district of Victoria.

HYPOLEPIS TENUIFOLIA, Bernh. "Soft Hypolepia." (Filicales.)

Raymond Creek, near bridge of Old Cann Road, East Gippsland,
George E. Harrison, 1/1/1917.

This is a definite locality in Victoria for this plant.

INULA GRAVEOLENS, Desf. "Stinkwort." (Compositae).

Nowa Nowa, Gippsland, Victoria, Hon. James Cameron, April,
1919. This proclaimed pest is gradually extending eastward in
this State.

I SOPOGON ANEMONIFOLIUS, Knight. "Tall Conebush." (Proteaceae).

Near Providence Ponds, West of Fernbank Railway Station,
Gippsland, Victoria, T. S. Hart, 15/11/1919.

A definite locality in Victoria for this plant. Although the plant
is given in F. v. Mueller's Census, there were no specimens in the
Herbarium, and Bentham gives it as from New South Wales only.

JASMINUM LINEARE, R.Br. "Desert Jasmin." (Oleaceae).

North-east of Lake Hattah, Vic., J. E. Dixon, April, 1919. A
definite locality in Victoria for this plant.

LASIOSPERMUM RADIATUM, Trev. "Royal Down Flower."
(Compositae).

Near Ballarat, H. B. Williamson, Feb., 1914.

This plant, a native of South Africa, has now apparently estab-
lished itself as a naturalised alien in the above district.

LORANTHUS (Loranthaceae).

Hill's Northern Territory specimens No. 303 and 421, which
were labelled *Loranthus dictyophlebus*, are considered by Mr. Maiden
to be *Loranthus Exocarpi*, Behr, var. *spathulata*, Blakely; also
Hill's No. 539, labelled *L. longiflorus*, Desr., he considers to be *L.*
odontocalyx, F. v. M.

LORANTHUS LONGIFLORUS, Desr. "Long-flower Mistletoe."
(Loranthaceae).

Genoa, Victoria, Rev. A. J. Maher, Nov., 1918.

New for Victoria.

LOLIUM SUBULATUM, Vis. "Wimmera Rye Grass." (Gramineae).

Nhill, January, 1919, A. J. Mullett.

This is a new record as a naturalised alien in Victoria. It is

stated to have spread from a patch planted near a dam twenty-three years ago at Minyip, and now covers several hundred acres. It has been found at various localities in the Wimmera, including Nhill, Warracknabeal, and has apparently been confused with some of the numerous forms of English Rye Grass, Italian Rye Grass, Western Wolths, etc.

It is a native of South Europe, but it does not appear to be common, or to have been investigated economically. Mr. Mullett informs me that it has a high carrying capacity for stock, maintains itself readily by seed, but is injurious to wheat cultivation. The grass appears to be more vigorous and larger in the Wimmera than in its native home. Hence specimens were sent to Professor Hitchcock, United States Agrostologist, who confirms the above identification.

It is possible that forms might be raised from this grass suitable for Central Australian regions, as a drought resistant grass. Information in regard to the properties of this grass is given by Mr. Mullett in the May number of the "Agricultural Journal of Victoria," 1919.

LONICERA JAPONICA, Thunb. (Caprifoliaceae).

Ararat Creek, Narnargoon, Victoria. J. W. Audas, Nov., 1919

A garden escape spreading along the creek and possibly in the process of naturalisation.

MICROCALA FILIFORMS, Hoff. and Link. "Slender Microcala."

Langwarrin, Victoria, Ed. E. Pescott, Oct., 1919.

A native of Europe, previously recorded as naturalised in the Western District of Victoria only.

MICROCYBE PAUCIFLORA, Turcz. (Rutaceae).

Localities.—Western Australia, Drummond, 5th Collection, n 209, South Coast, R. Brown, East Mount Barren, G. Maxwell.

South Australia.—Near Lake Hamilton, C. Wilhemi; Port Lincoln, C. Wilhemi; Port Lincoln, S. S. Browne; Venus Bay, Col. Warburton; Kangaroo Island, O. Tepper.

Victoria.—N.W. of Lake Albacutya, C. French, senr.; Murrayville, H. B. Williamson.

MICROCYBE MULTIFLORA, Turcz. (Rutaceae).

Localities.—Western Australia, Drummond 5th Collection n. 211. North of Sterling Range, and west of Blackwood River, Muir; be-

tween Dundas Hills and Lake Lefroy, J. D. Batt; between Eucla and Fowler's Bay, Miss S. Brooke; Eucla, W. Webb, also J. D. Batt.

South Australia.—Moonta, Beythien, Kangaroo Island, O. Tepper; Sedan, Rothe.

Victoria.—Nhill, St. Eloy D'Alton; N.W. of Lake Albacutya and beyond Lake Hindmarsh, C. French; Mallee, C. Walter; Wimmera, C. S. Sutton, C. French, junr.

M. MULTIFLORA, var. *baccharioides*.

Near Fowler's Bay, W.A. E. Giles; near Port Eucla, W.A., Forrest; Gawler Ranges, S.A., Dr. Sullivan.

MICROCYPBE ALBIFLORA, Turcz. (Rutaceae).

Locality.—Western Australia; Drummond, 5th Collection, n. 210.

The foregoing species were associated together by Baron von Mueller, under the heading of *Eriostemon capitatus*. The distinction of *Microcybe* from *Eriostemon* is not only a convenient one, but is based upon clear and definite scientific distinctions. Of the three forms included by Baron von Mueller under *E. capitatus*, all are valid as distinct species under *Microcybe*.

MURALTIA HEISTERIA, D.C. "African Furze." (Polygalaceae).

Norton's Summit, about eight or nine miles from Adelaide, Sth. Australia, per A. G. Edquist, July, 1919.

This hardy evergreen shrub, native of South Africa, is evidently a garden escape, and may become a pest if allowed to spread.

MYOSOTIS AUSTRALIS, R.Br. "Austral Forget-me-not."
(Boraginaceae).

Wedderburn, Victoria, W. W. Watts, October, 1918.

A new locality in Victoria for this plant.

NOTHOSCORDUM FRAGRANS, Kunth. "Wild Onion or Scented
Nothoscordum." (Liliaceae.)

Cawley's Creek, Timboon, per W. A. N. Robertson, 23/10/1919. This plant, a native of North America, recorded as a garden

escape in the *Vict. Nat.*, XXIV., p. 193 (1905), may now be considered to be established as a naturalised alien in this State.

OXALIS PURPURATA, Jacq. (Oxalidaceae).

Drouin, Victoria, Nov. 1919, C. French, Junr.

Recorded previously as a garden escape, and now reported as common at Drouin. This plant, a native of South Africa, is evidently in process of naturalisation.

PANICUM PARVIFLORUM, R.Br. (Gramineae).

As there are no Victorian specimens of this plant, it must be deleted from the Flora of Victoria. Its original admission was due to an error. (See *Vict. Nat.* XXIV., p. 87, 1907.)

PHEBALIUM OBCORDATUM, Cunn. (Rutaceae).

Whipstick Scrub, Neilborough Road, North of Eaglehawk, Victoria, David J. Paton, 7/9/1919.

This species has only previously been recorded from New South Wales. There is a specimen in the National Herbarium labelled in the late Baron von Mueller's handwriting as *Eriostemon Mortonii*, from Sandhurst, Victoria, September, 1877, without collector's name. *E. Mortonii*, F.v.M., is a synonym to *Phebalium obovatum*, Cunn. The Baron apparently neglected to record it for Victoria.

PHORMIUM TENAX, Forster. "New Zealand Flax." (Liliaceae).

Cawley's Creek, Timboon, per W. A. N. Robertson, 23/10/1919.

This plant, a native of New Zealand, which is often cultivated in gardens, is stated to be growing wild at the above locality.

PIMELEA FLAVA, R. Br. (Thymelaeaceae).

Bentham gives the flowers as being male and female. In Moore's Flora of New South Wales, this character is used in diagnosis in the Keys. In a large number of specimens recently examined in class it was noticed uniformly that each head contained a number of male flowers, and a few fruiting flowers, but that all the latter contained two well developed and apparently fertile stamens. The flowers may, therefore, be either male or hermaphrodite. There appears, however, always to be a larger number of male flowers in the head than of the "female," or hermaphrodite, flowers.

PLAGIANTHUS MONOICA (R. Helms M.S.). Ewart, n.sp. (Malvaceae).

Near Lake Deborah, West Australia. Collector, R. Helms, 1891.

This undescribed plant had the above MS. name, without any author, attached. It is a shrubby plant, covered with a pale, close, short tomentum, easily rubbed off or scraped off, leaving a brown surface on the branches. The leaves are long, narrow, sessile, nearly linear, with ventrally inrolled edges, 3-5 centimetres long, averaging about 2 mms. broad. The flowers are in terminal leafy cymes, usually of 3-6 flowers. Carpels, 3, rarely 2, one-seeded. Styles 3 (or 2) forking dichotomously into 6 (or 4) (Ureneae). Flowers male and female. Staminal column bearing anthers to the summit (Malveae). In the female flowers the petals are stiff, scarious scales covered with hairs. In the male flowers the petals are normal.

Although the character of the styles is peculiar, the plant appears to belong to *Plagianthus*, and it may be placed next to *P. squamatus*.

POLYPOGON LITTORALIS, Sm. "Perennial Beardgrass." (Gramineae).

Fisherman's Bend, Port Melbourne, Victoria, A. O'Brien, 18/11/1919.

This species is a native of Europe; has been recorded as introduced in Queensland and West Australia. It has now made its appearance in Victoria for the first time. In its native home it grows in salt marshes along the sea coast. It is not likely to prove of much value as a pasture grass.

PULTENAEA POLIFOLIA, Cunn. "Dusky Bush Pea" (Leguminosae).

Mitta Mitta, S. F. Clinton, Nov., 1918.

New for Victoria.

PULTENAEA PROCUMBENS, Cunn. "Curl-leaf Bush Pea."

(Leguminosae).

Mitta Mitta, S. F. Clinton, Nov., 1918.

New for Victoria.

RANUNCULUS MUELLERI, Benth. "Felted Buttercup."

(Ranunculaceae).

"Flourbag." Bright-Omeo Road, 4600 ft., Nov. 20, 1918, D. J. Paton.

In Mr. Williamson's paper on doubtful Victorian Plant records, it was pointed out that *Ranunculus Muelleri* was only represented in the Herbarium from the doubtful locality, Munyang Mts., which might mean a New South Wales locality. Mr. D. J. Paton forwards specimens collected on the Omeo side of Mt. Hotham, which belong to *Ranunculus Muelleri*, and, therefore, give an undoubted Victorian record for this plant.

SETOSA ERECTA, Ewart and Cookson. (Flora of the Northern Territory, 1917, p. 33) = *SETOSA HORDEACEA*, Ewart. (*Chamaeraphis hordeacea*, R.Br.)

The characters on which the distinction from *Chamaeraphis* are based are:—

Setosa:

- Inflorescence a spike
- Spikelets single to each awn
- Glumes rigid
- "Awn" very long and rigid
- Styles free to the base
- Staminodia 3 in female flower.
- Outermost small glume callous and truncate

Chamaeraphis:

- Inflorescence a panicle.
- Spikelets two or more to each awn, very rarely one.
- Glumes lax.
- "Awn" short and soft.
- Styles shortly united at the base.
- Staminodia 2 in female flower.
- Outermost small glume thin and membranous.

Setosa represents the highest development of the peculiar mode of developing an awned spikelet, of which the beginnings are shown in *Chamaeraphis*, and in *Setosa* the spikelet, with its basal branch "awn," disarticulates very readily and in one piece. In *Chamaeraphis* the spikelets disarticulate less readily and separately.

Setosa is strongly xerophilous, though usually growing near water. *Chamaeraphis* is semi-aquatic.

SOLANUM VIOLACEUM, R.Br. "Violet Nightshade." (*Solanaceae*).

East Gippsland, Rev. A. J. Maher.

New for Victoria.

TRICHINIUM ALOPECUROIDEUM, Lindl. "Long Tails." (Amarantaceae).

"Lorquon" received from State School, No. 2590, 5/5/1919.

A definite locality in Victoria for this plant.

TRICHOMANES PARVULUM, Poir. (Filicales).

There are no Victorian specimens of this fern. The plants on which the original record was made proved on examination by the Rev. W. W. Watts to be *Umbraculum flabellatum*, Gottsche (Hepaticae) the two plants having an extraordinary external resemblance. *T. parvulum* must be deleted from the list of the Flora of Victoria.

TRIGLOCHIN CENTROCARPA (Hook) var. longicarpa. (Naiadaceae).

Watheroo Rabbit Fence, W.A., M. Koch, September, 1905.

According to Ostenfeld, in Dansk Botanist, Arkiv. Bd. 2, page 35, 1918, the above was included under *Triglochis centrocarpa*, Hooker, in the collection by Max Koch.

ULMIS CAMPESTRIS, L. "Common Elm." (Ulmaceae).

(Rate of growth.)

In the last number of the Contributions to the Flora of Australia, some data were given in regard to the growth of this tree. One curious feature was an apparent contraction taking place during autumn and winter, after the cessation of growth in circumference, followed by an expansion during a wet winter period (June-July). In these observations the bark was left untrimmed around the measurement line, and the tape used was standardised only at the commencement and close of the observations. According to Trowbridge and Weil (Science N. Series 48, 1918, pp. 348-550), trees vary both in length and in breadth according to the temperature. Thus stems of *Tilia europaea* and *Platanus orientalis* increase in diameter slightly with a rise of temperature above 32 deg. F., but undergo marked transverse contraction with a fall of temperature below 32 deg. F. They conclude that the diameter of a tree is less when frost cracks are open than when they are closed, and that the cracks are due to this contraction and not to the expansion of the frozen water. The question naturally arises whether full precautions were taken to ensure that the measurements taken were adequately standardised. Trowbridge and Weil mention that

the changes in circumference lag six to twenty-four hours behind the changes of temperature. The temperature at the centre of the trunk of a large leafless tree is not, however, affected appreciably by daily variations of temperature, and only responds slowly to a change in the average mean temperature.

In the measurements of the Elm taken in 1917-18, it was found that an apparent growth contraction took place in winter, and that slight variations in circumference were shown from time to time during the non-growing period. These measurements were taken with a tape around a partially smoothed line.

To obtain more accurate measurements a girdle of bark was removed, leaving a smooth surface close to the cork cambium. A standard length of 6 ft. 9 in. was marked by Dr. Baldwin, Government Astronomer, on the stone basement. After each measurement with a waxed tape it was extended over the standard, the increase over the standard giving the actual increment of growth. The tape was thus merely used to transfer the circumference of the stem to the standard length, and not to measure it.

The tape was kept in a dry room, and from November, 1918, to April, 1919, 6 ft. 9 in. on the tape corresponded to 6 ft. 9 in. on the standard. The tape then began to shorten, and most rapidly during May, until 6 ft. $9\frac{4}{7}$ on the tape covered 6 ft. 9 in. on the standard, and on June 15th, 6 ft. $9\frac{5}{16}$. By July 2nd the tape had shortened a further $\frac{1}{32}$ of an inch. A similar tape kept in a damp cellar for a month shortened $\frac{1}{4}$ inch per 8ft. in this time, although the temperature was fairly constant. The effect is, therefore, due to the gradual absorption of moisture, the humidity of the air increasing greatly in Melbourne during winter.

The deepening of the girdle on the tree reduced the circumference from 6 ft. $11\frac{1}{4}$ in. to 6 ft. $8\frac{3}{4}$ in.

In the previous year's measurements growth did not become perceptible until the first week in November, but here it began during the first week of October. This was the same time as when the cambium began to divide in the previous years measurements, so that the removal of the cork ring allows the actual growth to become sooner perceptible externally. In 1918 growth ceased at the end of February, but in 1919 it continued until the middle of March. This was probably, however, the result of the exceptionally mild and favourable autumn experienced in 1919. The total growth in 1917-1918 was $1\frac{1}{4}$ in., and in 1918-1919 $1\frac{1}{2}$ in.

Date.	Corrected Girth.			Rate of Growth per month of 30- days in			
	Ft.	in.	$\frac{1}{8}$ in.	$\frac{1}{8}$ in.			
July 26, 1918	-	-	6	8	12	-	nil.
August 16, 1918	-	-	6	8	13	-	nil.
September 21, 1918	-	-	6	8	13	-	nil.
October 10, 1918	-	-	6	8	14	-	
October 18, 1918	-	-	6	8	14	-	1.5
October 30, 1918	-	-	6	8	15	-	2.5
November 7, 1918	-	-	6	9	1	-	7.5
November 26, 1918	-	-	6	9	5	-	6.3
December 3, 1918	-	-	6	9	7	-	8.6
December 14, 1918	-	-	6	9	9	-	5.5
December 26, 1918	-	-	6	9	11	-	5.0
January 17, 1919	-	-	6	9	14	-	4.3
January 30, 1919	-	-	6	10	0	-	4.6
February 20, 1919	-	-	6	10	3	-	4.3
March 13, 1919	-	-	6	10	5	-	2.9
March 28, 1919	-	-	6	10	5	-	nil.
April 25, 1919	-	-	6	10	5	-	nil.
May 21, 1919	-	-	6	10	5	-	nil.
August 1 1919	-	-	6	10	5	-	nil.

Throughout the autumn and winter there was no evidence of any expansion or contraction with changes of temperature within a range of 45°F., (34°F.-79°F.), the static measurement being 6 ft. $10\frac{5}{16}$ in. On several occasions after rain had fallen and saturated the bark, corrected readings of $6.10\frac{6}{16}$ were given (May 23rd, June 2nd, June 15th, June 30th, etc.), but between these times the measurement reverted to 6 ft. $10\frac{5}{16}$ in. It would be of interest to know in detail the method of standardization adopted by Trowbridge and Weil, and also what precautions were taken to distinguish between variations of girth due to moisture and those supposed to be due to temperature. A variation of $\frac{1}{16}$ in. in 6 ft. $10\frac{5}{16}$ in. is approximately 0.07%, and if it were due to temperature, with a range of 45°F., it would represent 0.0017% per 1°F., which would in any case be negligible in dealing with a material like the trunk of tree. The view put forward by Trowbridge and Weil that frost cracks are due to the pronounced contraction of the diameter of the tree and not to the expansion of frozen water merits further investigation.

VERBASCUM BLATTARIA, L. Spurious or Twiggy Mullein.
(Scrophulariaceae).

In J. M. Black's Naturalised Flora of South Australia Ver-
In J. M. Black's Naturalised Flora of South Australia, Ver-
ralised aliens in South Australia, whereas in Victoria the only two

recognised are *V. Thapsus* and *V. Blattaria*. There has always been some confusion between *V. Blattaria* and *V. virgatum*. Thus *Verbascum virgatum*, Spreng. (Syst. 1, 621) = *V. Blattaria*.

Verbascum Blattaria, Vell = *V. virgatum*.

The true *V. Blattaria* is that of Linnaeus Sp. Pl. 178, a native of Europe and Asia, whereas *V. virgatum* was described by Stokes (With. Bot. Arr. Brit, Pl. ed. 11, 227), and appears to be originally a native of Europe only.

In Bentham's British Flora, *V. virgatum* is distinguished from *V. Blattaria* by (1) the more abundant glandular hairs, (2) the pedicels of the flowers are shorter than the calyx, whereas in *V. Blattaria* they are longer; (3) there are usually 2-6 flowers to each bract.

If the Victorian specimens of *V. Blattaria* are sorted out into those with long and those with short pedicels, it will be found that the glandular pubescence varies in both series, and that there are as many specimens of "*V. virgatum*," with one flower to each bract, as with two or more flowers. If the specimens are sorted into "1 flowered," and 2, or more, flowered specimens, the long stalked and short stalked characters are completely mixed in both sets. Although *V. virgatum* is called the "Twiggy Mullein," branching specimens otherwise typical of *V. Blattaria* are quite common.

The only satisfactory conclusion is to regard *V. virgatum* as a variety of *V. Blattaria*, differing in one constant feature, the length of the pedicel, as thus—

<i>V. Blattaria</i> , L.	<i>V. Blattaria</i> , L. var. <i>virgatum</i> .
Flowers 1 to each bract	Flowers 1 or 2 rarely up to 6 to
Pedicels longer than calyx or	each bract.
bracts.	Pedicels usually shorter than calyx
	or bracts.

The variety *virgatum* is the commoner form in Victoria, but in Europe is of more restricted range than the typical *V. Blattaria*.

VICIA SEPIUM, L. "Bush Vetch." (Leguminosae).

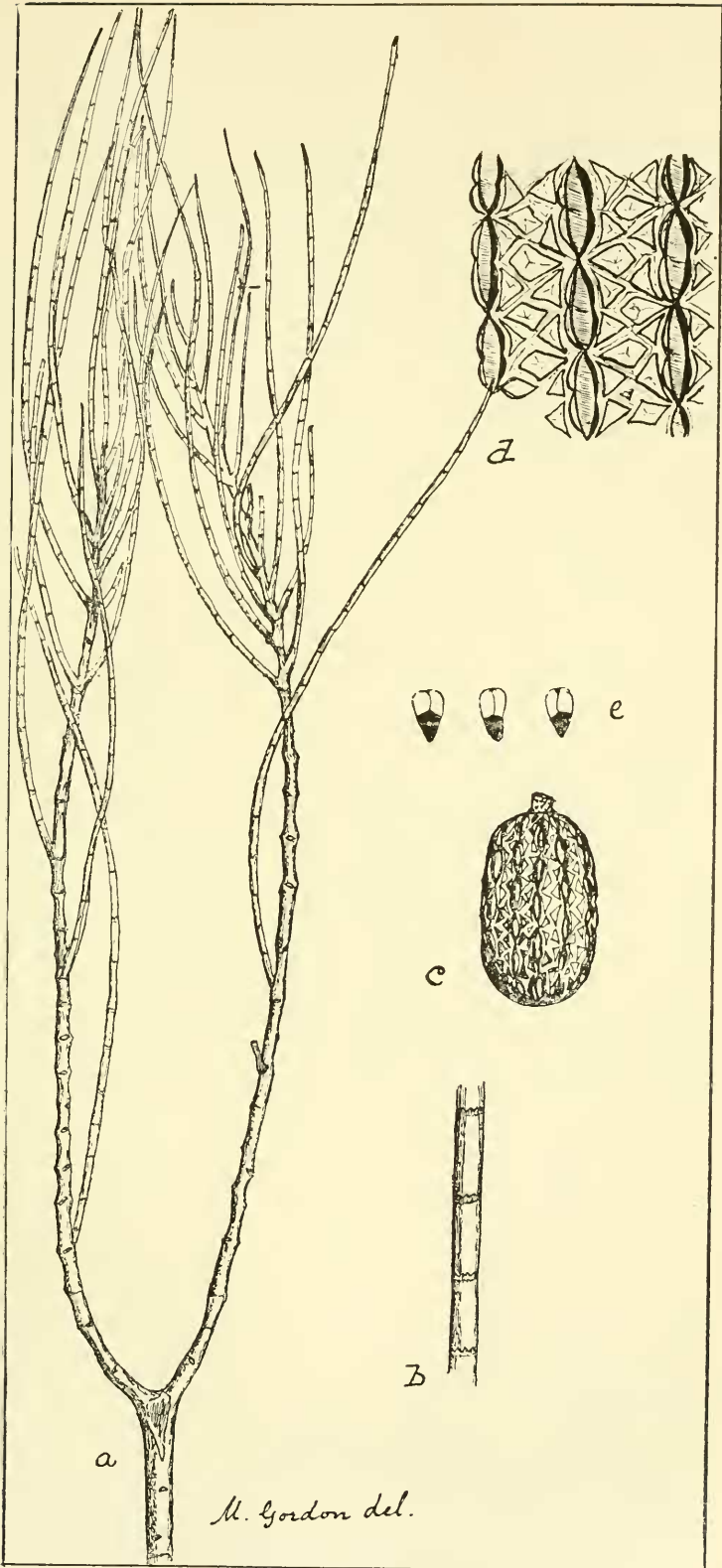
Alston's Farm, S. Wycheproof, Vic., W. W. Watts, Sept., 1918.

Not previously recorded as a naturalised alien in Victoria, but probably often confused with *Vicia sativa*. *Vicia sepium* is naturalised in South Australia.

ZYGOPHYLLUM BILLARDIERI, D.C. "Coast Twin Leaf."
(Zygophyllaceae).

Wahgunyah, Murray River, G. H. Adcock, Sept. 11, 1919.

In the preparation of phylloxera resistant vines by grafting on



Casuarina Helmsii, n sp